Section II (Amendments to the Claims)

Please cancel claims 1-45, and add new claims 46-56 as set out below in the complete listing of the claims of the application.

1.-45. **(Cancelled)**

46. **(New)** An electrically non-conductive, nanoparticulate membrane comprising nanoparticles of at least one inorganic oxide of an element selected from Group IA, IIA, IIIA, IVA, IB, IIB, IIIB, IVAB, VB, VIB, VIIB or VIIIB of the Periodic Table, and wherein an oxidoreductase enzyme and a polymeric redox mediator capable of transferring electrons are diffusibly dispersed in said nanoparticulate membrane.

47. **(New)** The membrane according to Claim 46, wherein the oxidoreductase is selected from the group consisting of glucose oxidase, hydrogen peroxidase, horseradish peroxidase, xanthine oxidase, cholesterol oxidase, hydrogen hydrogenase, lactate dehydrogenase, glucose dehydrogenase, NADH dehydrogenase, sarcosine oxidase, lactate oxidase, alcohol dehydrogenase, hydroxybutyrate dehydrogenase, glycerol dehydrogenase, sorbitol dehydrogenase, malate dehydrogenase, galactose dehydrogenase, malate oxidase, galactose oxidase, xanthine dehydrogenase, alcohol oxidase, choline oxidase, xanthine oxidase, choline dehydrohenase, pyruvate dehydrogenase, pyruvate oxidase, oxalate oxidase, bilirubin oxidase, glutamate dehydrogenase, glutamate oxidase, amine oxidase, NADPH oxidase, urate oxidase, cytochrome C oxidase, and actechol oxidase.

48. **(New)** The membrane of claim 46, wherein the polymeric redox mediator capable of transferring electrons is a vinylferrocene-based polymeric redox mediator capable of transferring electrons.

49. **(New)** The sensor according to Claim 46, wherein the oxidoreductase is covalently linked to the polymeric redox mediator by cross-linkages.

50. **(New)** The membrane of claim 46, wherein the element selected from Group IA, IIA, IIIA,

IVA, IB, IIB, IIIB, IVAB, VB, VIB, VIIB or VIIIB of the Periodic Table is selected from the group consisting of aluminium, silicon, magnesium and zinc.

51. **(New)** The membrane of claim 46, wherein the thickness of the membrane ranges from 250 to 500 μm.

52. **(New)** The membrane of claim 46, wherein the size of the nanoparticles ranges from 10 nm to 1 μm.

53. **(New)** The membrane of claim 46, wherein the membrane further comprises a polymeric binder.

54. **(New)** The membrane according to Claim 53, wherein the polymeric binder is a polymer or copolymer comprising monomer units selected from the group consisting of vinyl pyridine, vinyl imidazole, acrylamide, acrylonitrile, and acrylhydrazide and acrylic acid.

55. **(New)** The membrane according to claim 46, wherein the membrane is adapted for determination of glucose concentration.

56. **(New)** The membrane according to claim 48, wherein the vinylferrocene-based polymeric redox mediator is selected from the group consisting of poly(vinyl ferrocene), poly(vinyl ferrocene)-co-acrylamide, poly(vinyl ferrocene)-co-acrylic acid, and poly(vinyl ferrocene)-co-acrylamido-$(CH_2)_n$-sulfonic acid, and poly(vinyl ferrocene)-co-acrylamido-$(CH_2)_n$-phosphonic acid, wherein n is an integer from 0 to 12.